New York Electric Market: Overview and Focal Points

New York (NYISO) Electric Regions

This map was created using Patts PowerMap.
Overview

Geography

State covered: New York

Reliability region: New York ISO (NYISO) sub-region of the Northeast Power Coordinating Council (NPCC)

Balancing authority: NYISO

Zones: Capital (Zone F), Central (Zone C), Dunwoodie (Zone I), Genesee (Zone B), Hudson Valley (Zone G), Long Island (Zone K), Millwood (Zone H), Mohawk Valley (Zone E), New York City (Zone J), North (Zone D), West (Zone A)

RTO/ISO

NYISO (established 1999) operates the region’s power grid and wholesale electric markets:

- Energy market: two-settlement (day ahead and real-time) spot market with locational marginal pricing,
- Regional and locational capacity market, and
- Financial transmission rights market.

NYISO 2006 State of the Markets Report

Market Monitor:
Nicole Bouchez – Manager, Internal Market Monitor, New York ISO
David Patton – Independent Market Advisor, New York ISO and President of Potomac Economics

Updated August 3, 2007
RTO/ISO (continued)

Also, market participants trade electricity bilaterally through brokers, the IntercontinentalExchange (ICE) and the New York Mercantile Exchange’s (Nymex) ClearPort, using Zone A (West) as a pricing point.

Generation/Supply

Marginal fuel type: natural gas

Generating capacity (summer 2006): 39,704 MW

Capacity reserve (summer 2006): 5,765 MW

Reserve margin (summer 2006): 17%

The New York City metropolitan area (NYC) and Long Island (LI) are areas of concentrated demand. Both localities have requirements for installed generating capacity that are more stringent than the rest of the region, to ensure reliability of service.

Demand

All time peak demand: 33,939 MW (set August 2, 2006)

In summer of 2006, demand reached record levels on several occasions due to extremely hot weather.

Peak demand growth: 5.6 % (2006-2005)


Load pockets: Zone J New York City and Zone K Long Island
Prices

Annual Average Day-Ahead Price

**Zone J New York City**
- 2004: $63.13/MWh
- 2005: $93.45/MWh
- 2006: $70.86/MWh
- 2007: $77.09/MWh

**Zone K Long Island**
- 2004: $63.05/MWh
- 2005: $98.94/MWh
- 2006: $86.09/MWh
- 2007: $86.71/MWh

**Focal Points**

**NYC Adds 1,000 MW**: In 2006, two 500-MW combined-cycle, gas-fired power plants entered service in New York City. These included the SCS/Astoria, run by Astoria Energy LLC, a subsidiary of Massachusetts-based SCS Energy LLC., and the New York Power Authority’s Astoria unit. These new facilities provided a local buffer of capacity to the import-dependent New York City market.

**Software Upgrade**: On Feb. 1, 2005, the New York Independent System Operator (NYISO) launched a market software overhaul dubbed Standard Market Design 2.0 (SMD-2). This upgrade increased efficiency and enabled various market enhancements, including demand curves for reserves and regulation services and three-part offers in real-time for generators (start-up costs, minimum generation costs, and incremental energy costs).
Supply and Demand Statistics for NYISO

<table>
<thead>
<tr>
<th>Supply Demand Statistics</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Generating Capacity (MW)</td>
<td>38,111</td>
<td>37,548</td>
<td>39,704</td>
</tr>
<tr>
<td>Summer Peak Demand (MW)</td>
<td>28,433</td>
<td>32,075</td>
<td>33,939</td>
</tr>
<tr>
<td>Summer Reserves (MW)</td>
<td>9,678</td>
<td>5,473</td>
<td>5,765</td>
</tr>
<tr>
<td>Summer Reserve Margin</td>
<td>34%</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>Annual Load (GWh)</td>
<td>160,211</td>
<td>167,208</td>
<td>166,893</td>
</tr>
<tr>
<td>Annual Net Generation (GWh)</td>
<td>147,170</td>
<td>153,264</td>
<td>NA</td>
</tr>
</tbody>
</table>
### Annual Average Bilateral Prices

#### Annual Average Day Ahead On Peak Prices ($/MWh)

<table>
<thead>
<tr>
<th>Location</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Hub</td>
<td>$89.87</td>
<td>$69.85</td>
<td>$77.39</td>
<td>$71.39</td>
</tr>
<tr>
<td>Ny Zone G</td>
<td>$92.46</td>
<td>$75.95</td>
<td>$83.51</td>
<td>$75.05</td>
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<tr>
<td>NY Zone J</td>
<td>$110.03</td>
<td>$85.96</td>
<td>$94.15</td>
<td>$88.91</td>
</tr>
<tr>
<td>NY Zone A</td>
<td>$76.04</td>
<td>$58.70</td>
<td>$64.02</td>
<td>$60.50</td>
</tr>
<tr>
<td>PJM West</td>
<td>$76.64</td>
<td>$61.90</td>
<td>$71.15</td>
<td>$61.83</td>
</tr>
</tbody>
</table>

Source: Derived from Platts data.

Updated March 7, 2008
Daily Average of NYISO Day-Ahead Prices - All Hours

Source: Derived by Bloomberg from NYISO data as reported by Bloomberg.

Updated May 6, 2008
Daily Average of NYISO Day-Ahead Prices - All Hours

Source: Derived by Bloomberg from NYISO data as reported by Bloomberg.

Updated May 6, 2008
Eastern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data.
Implied Heat Rates at Eastern Trading Points

Source: Derived from Platts data
Weekly Electric Generation Output and Temperatures
Mid Atlantic Region

Source: Derived from EEI and NOAA data.
New York Electric Forward Price Curves and New York and Henry Hub Natural Gas Forward Curves

Source: Derived from Nymex data.

Updated May 6, 2008
Weighted Average ICAP Clearing Prices and Volumes: New York City

Source: Derived from NYISO data.
Weighted Average ICAP Clearing Prices and Volumes: Long Island

Source: Derived from NYISO data.

Updated May 6, 2008
Weighted Average ICAP Clearing Prices and Volumes: Rest of New York State

Source: Derived from NYISO data.
PJM, NYISO and ISO-NE Capacity Auction Prices

$/kW-yr

2003/2004
2004/2005
2005/2006
2006/2007
2007/2008
2008/2009
2009/2010
2010/2011

PJM, NYISO and ISO-NE Capacity Auction Prices

Source: Derived from PJM, NYISO and ISO-NE data.

Updated March 7, 2008
Various New York Swap Volumes

Source: Derived from ICE and Nymex ClearPort data. ICE on-peak swaps (financial) volume are for zones A, G and J and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swaps (financial) volume are for zones A, G and J and are traded by month.

Updated May 6, 2008
Hourly Real-Time Prices at Long Island (NYISO) and Jersey Central (PJM)
Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and PJM data.
Hourly Real-Time Prices at Long Island (NYISO) and Jersey Central (PJM) Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and PJM data.
Hourly Real-Time Prices at Long Island (NYISO) and Connecticut (ISO-NE) Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and ISO-NE data.
Hourly Real-Time Prices at Long Island (NYISO) and Connecticut (ISO-NE) Summer 2006 and 2007 (July and August)

Source: Derived from NYISO and ISO-NE data.

R-squared: 2006 0.6997 2007 0.7245
Li-CT Avg. price difference: 2006 48.84 2007 7.40
Number of Hours Long Island Minus Connecticut is < $0 2006 269 2007 703

Created November 5, 2007

May 2008